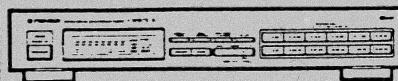


Service Manual


 ORDER NO.
ARP2576
FM/AM DIGITAL SYNTHESIZER TUNER

F-301 RDS

067.495.2

F-301 RDS HAS THE FOLLOWING :

Type	Power Requirement	Remarks
HEWZI	AC 220 - 230 V, 240 V (switchable) *	
HE	AC 220 - 230 V, 240 V (switchable) *	
HB	AC 220 - 230 V, 240 V (switchable) *	

* Change the connection of the power transformer's primary wiring.

- This manual is applicable to F-301 RDS/HEWZI, HE and HB.
- For HB and HE types, refer to page 23.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
1	FRONT PANEL	AMB1997	21	BONNET(FE)	ANE1236
Δ 2	FU1 (T400MA, 250V)	AEK-504	22	OPE. INSTRUCTIONS	ARC1343
Δ 3	AC POWER CORD	ADG1049		(German/Italian)	
NSP 4	CHASSIS	ANA1118	23	PLUG CORD	ADE-081
5	INSULATOR ASSY	AMR2140	24	CORD WITH PLUG	ADE-085
			25	FM ANTENNA	ADH1002
NSP 6	NYLON BINDER	AEC-093	26	L LOOP ANTENNA	ATB1006
Δ 7	STRAIN RELIEF	AEC-882	27	STYROL PROTECTOR	AHA1333
NSP 8	BARRIER	AEC1416	28	PACKING CASE	AHD2262
NSP 9	PCB MOULD	AMR1525	29	PACKING SHEET	AHG1017
10	SCREW	ABA-298	● 30	TUNER ASSEMBLY	AWZ4124
11	SCREW	ABA1018			
12	SCREW (STEEL)	ABA1047	● 31	POWER ASSEMBLY	AWZ4126
13	SCREW	BBZ26P100FMC	32	CONTROL ASSEMBLY	AWP1044
14	FL FILTER	AAK1927			
15	PANEL	AAK2338			
16	NAME PLATE (METAL)	AAM1029			
17	STATION BUTTON (ABS)	AAD1751			
18	STATION BUTTON (ABS)	AAD1752			
19	POWER BUTTON (ABS)	AAD1757			
20	CONTROL BUTTON (ABS)	AAD2280			

2. SCHEMATIC AND PCB CONNECTION DIAGRAMS

2.1 TUNER AND POWER ASSY

Note:

(Type 3)

- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

- RESISTORS:
Unit: k:k Ω , M:M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.

- CAPACITORS:
Unit: p:pF or μ : μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.

- COILS:
Unit: m:mH or μ : μ H unless otherwise noted.

- VOLTAGE AND CURRENT:
 \overline{mV} : Signal voltage at FM 1kHz, 100% MOD.
 \square : DC voltage (V) at no input signal unless otherwise noted.
Value in () is DC voltage at rated power.
 \triangleleft mA or \triangleleft mA: DC current at no input signal unless otherwise noted.

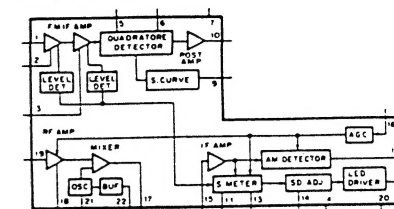
- OTHERS:
• \blacktriangleright : Signal route.
• \odot : Adjusting point.
• ∇ (Red): Measurement point.
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

- SWITCHES (Underline indicates switch position):

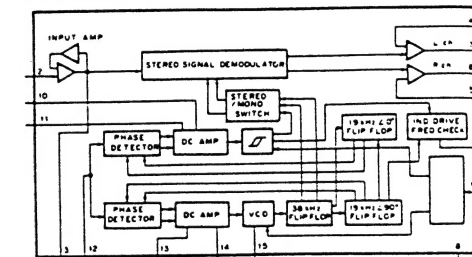
TUNER ASSY

- S 401: POWER
- S 402: 4/16/28
- S 403: 10/22/34
- S 404: 3/15/27
- S 405: 9/21/33
- S 406: +(TUNING UP)
- S 407: RF ATT
- S 408: 1/13/25
- S 409: 7/19/31
- S 410: MEMORY
- S 411: DISPLAY MODE
- S 412: -(TUNING DOWN)
- S 413: MAX MODE (AUTO/MODE)
- S 414: 2/14/26
- S 415: 8/20/32
- S 416: BAND
- S 417: INPUT/SEARCH
- S 418: 5/17/29
- S 419: 11/23/35
- S 420: 6/18/30
- S 421: 12/24/36

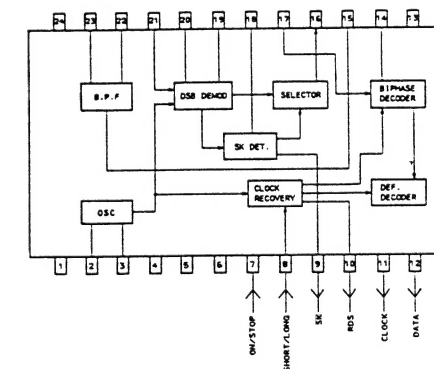
IC201 <LA1265S>



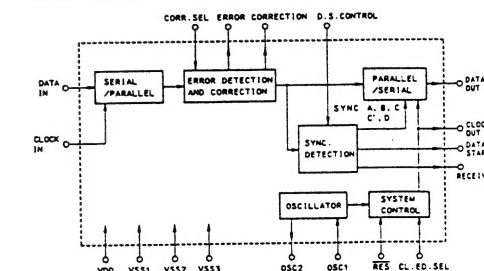
IC251 <AN7470P>



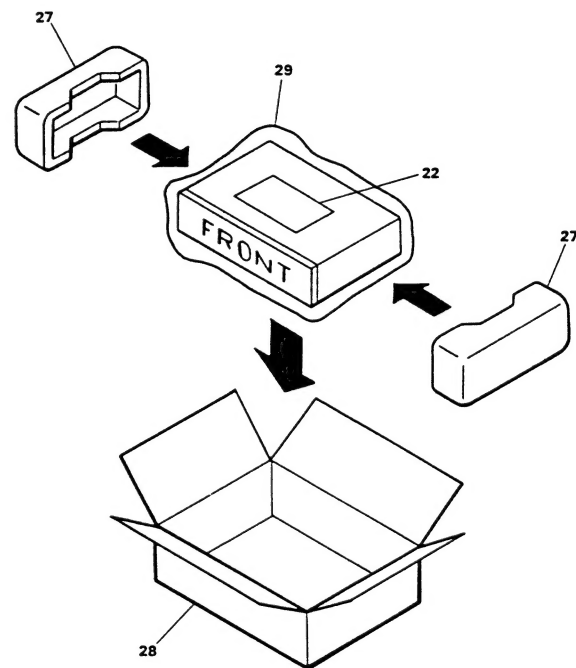
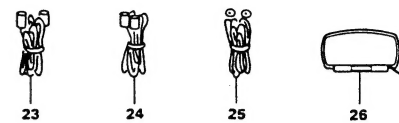
IC501 <PM4002>



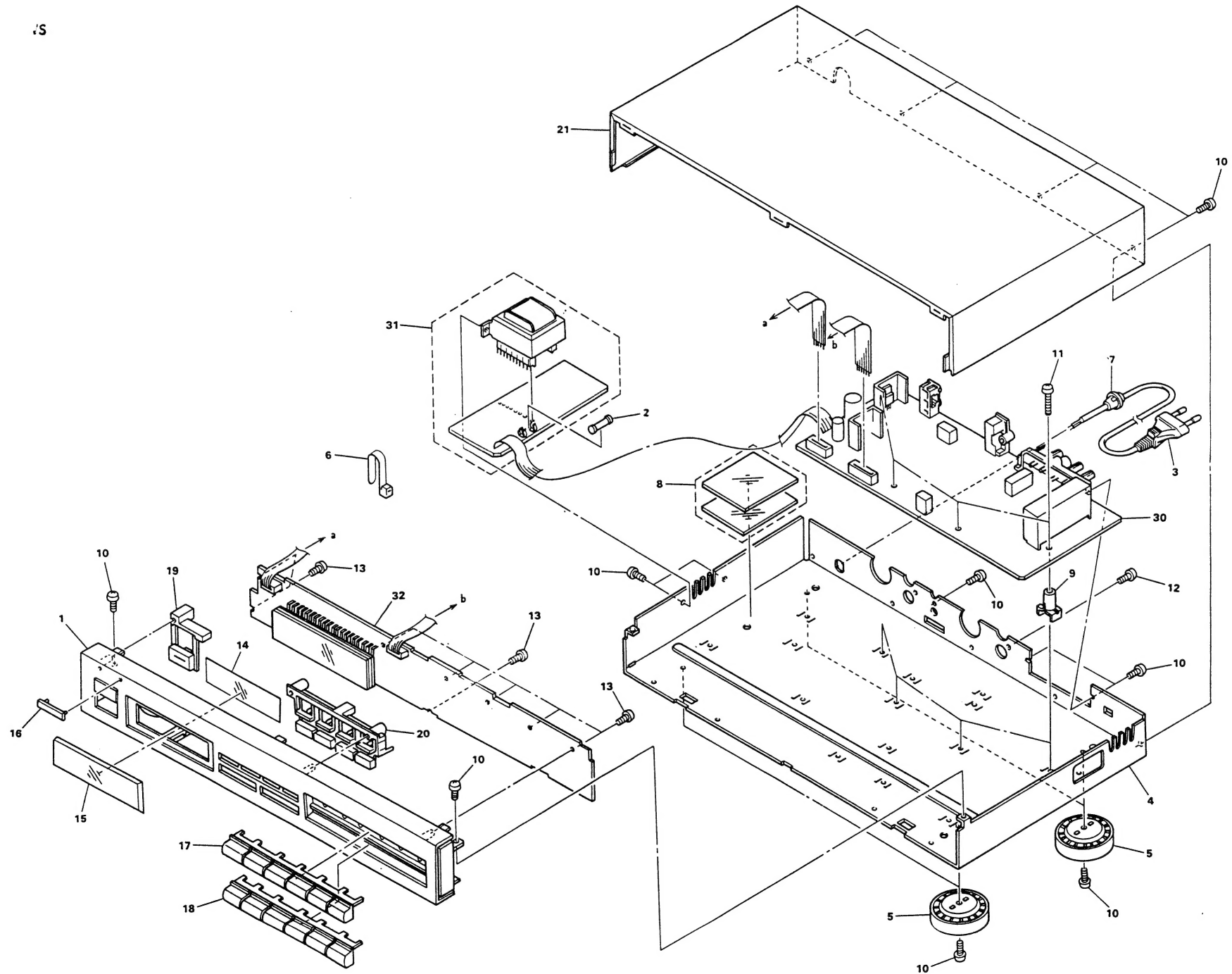
IC502 <LC7073>



PACKING



EXPLODED VIEW



1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

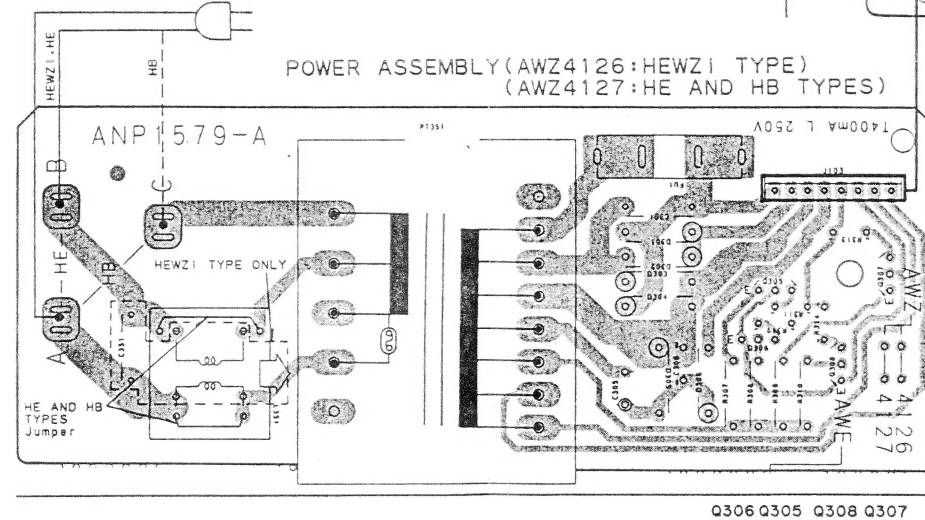
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

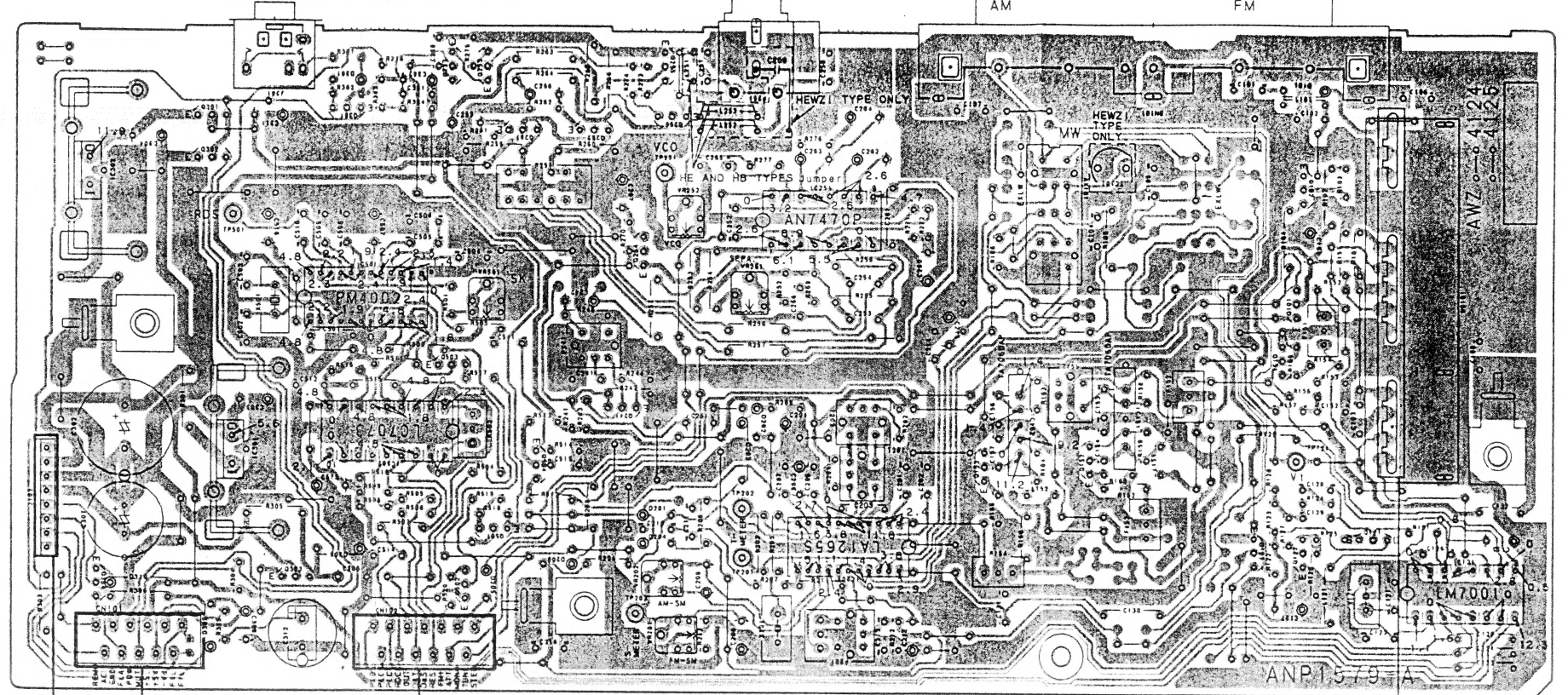
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⊙ (double circles) shows negative terminal.
4. The diode terminal marked with ⊙ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

AC POWER CORD
AC220-230V/240V
50/60Hz



TUNER ASSEMBLY (AWZ4124:HEWZI TYPE) (AWZ4125:HE AND HB TYPES)

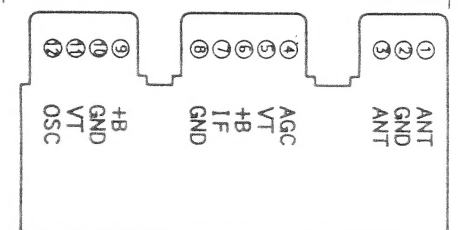


Line Voltage Selection

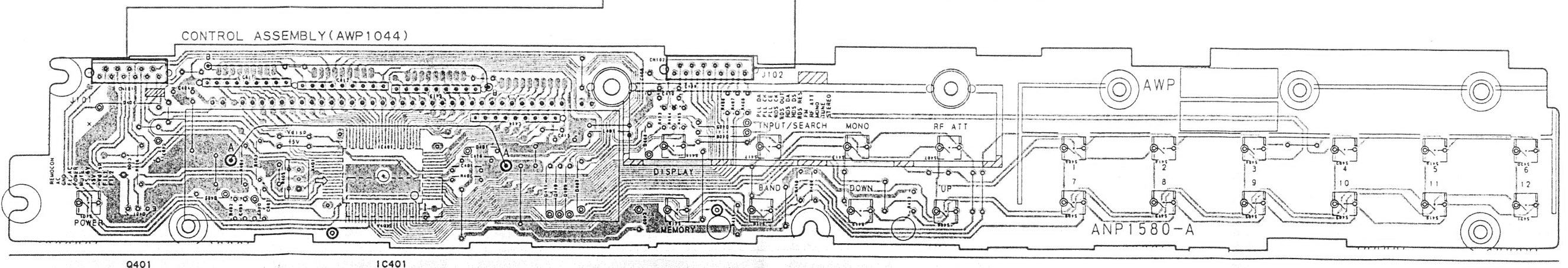
Line Voltage can be changed as follows:

1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of POWER ASSY primary pins.
4. Stick the line voltage label on the rear panel.

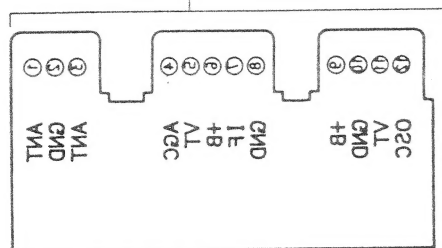
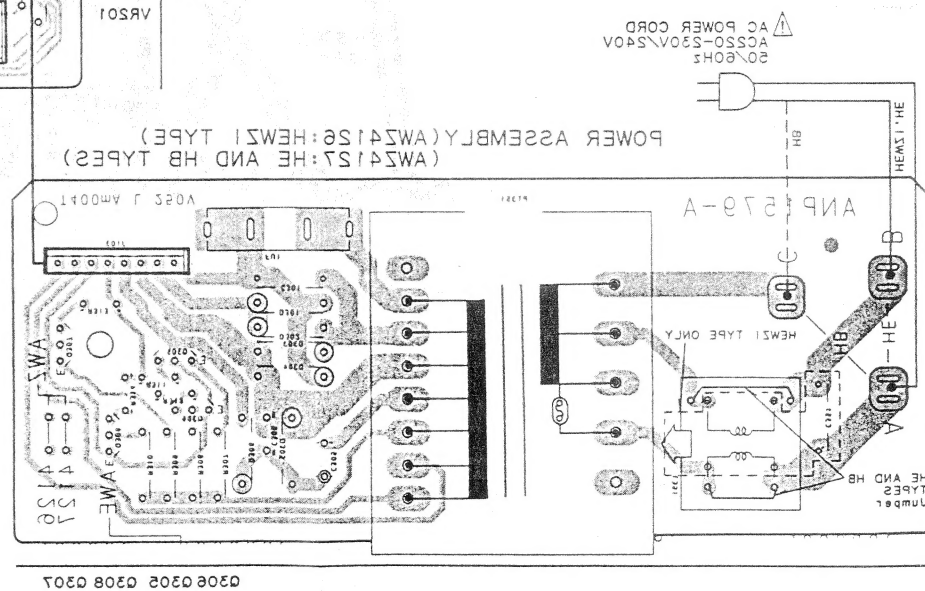
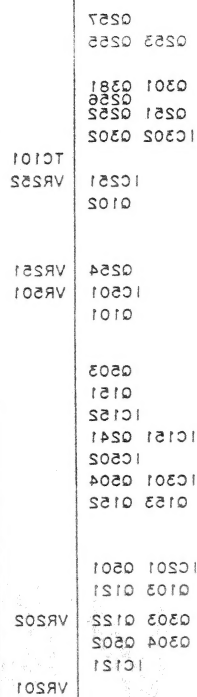
Part No.	Description
AAX-193	220 V label
AAX-192	240 V label



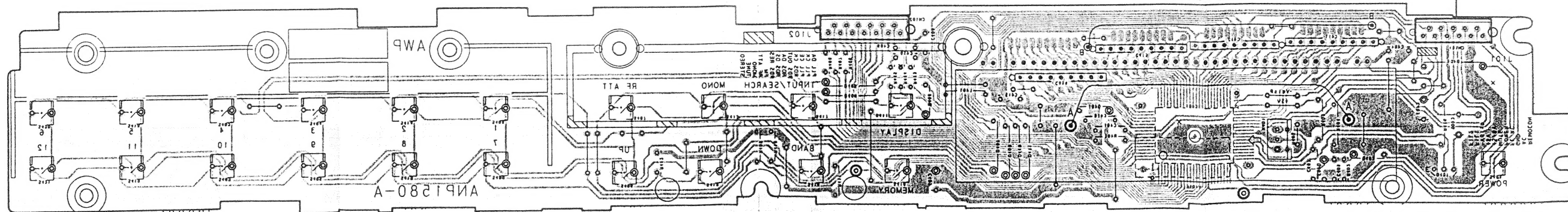
FE MODULE ASSEMBLY (AXQ1004)



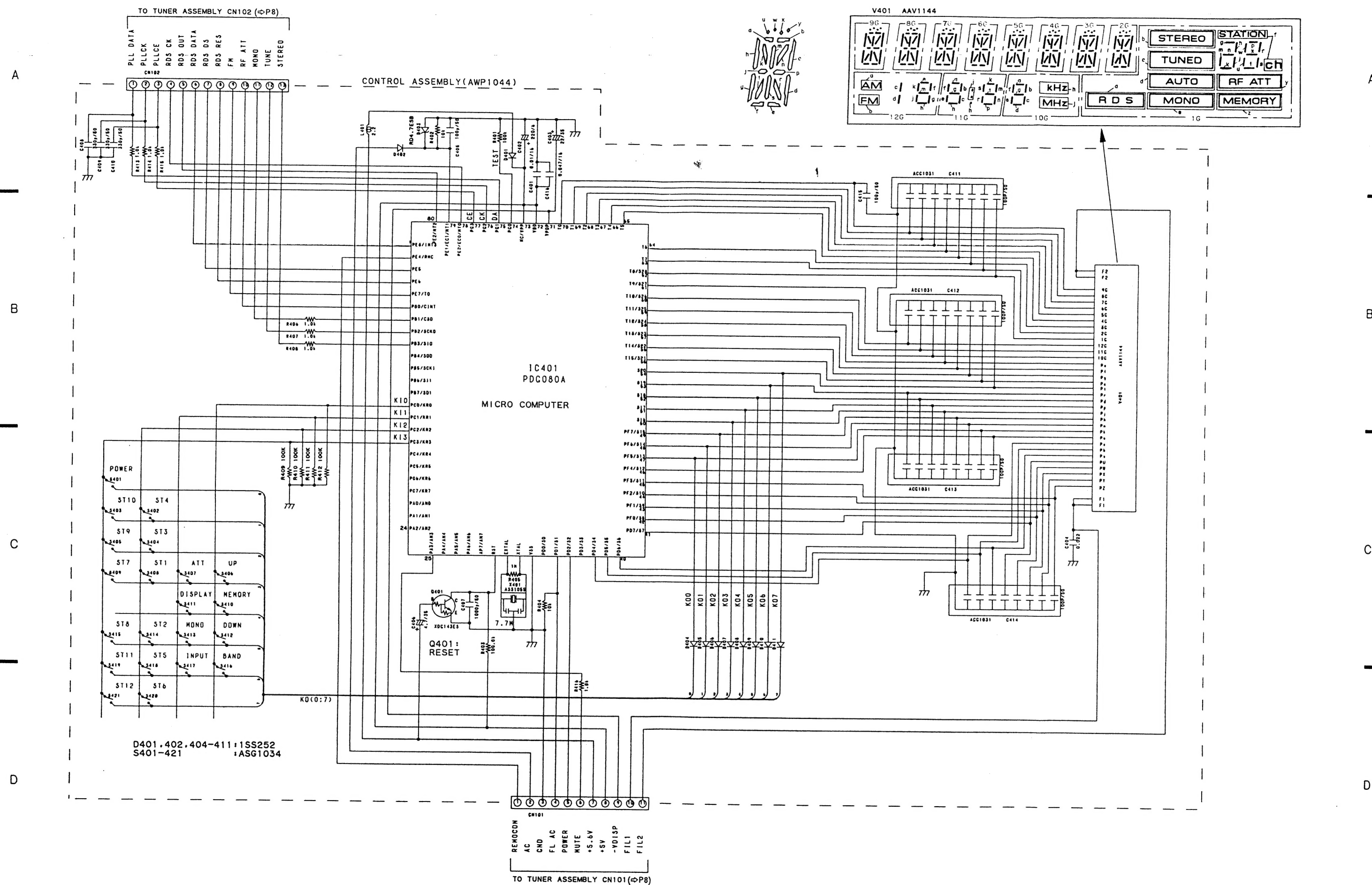
(AWZ41S2:HE AND HB TYPES) (AWZ41S4:HEWS1 TYPE) TUNER ASSEMBLY



FE MODULE ASSEMBLY
(AXQ1004)



2.2 CONTROL ASSY



3. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "©" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω \rightarrow 56 $\times 10^1$ \rightarrow 561 RD1/8PM[561]J

47k Ω \rightarrow 47 $\times 10^3$ \rightarrow 473 RD1/4PS[473]J

0.5 Ω \rightarrow 0R5 RN2H[0R5]K

1 Ω \rightarrow 010 RS1P[010]K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω \rightarrow 562 $\times 10^1$ \rightarrow 5621 RN1/4PC[5621]F

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
----------	-------------	-----------	----------	-------------	-----------

LIST OF ASSEMBLIES

● TUNER ASSEMBLY	AWZ4124
● POWER ASSEMBLY	AWZ4126
● CONTROL ASSEMBLY	AWP1044

TUNER ASSEMBLY

SEMICONDUCTORS

IC121	PLL IC	LM7001
IC151,152	AMPLIFIER IC	TA7060AP
IC201	AM/FM IC	LA1265S
IC251	MPX IC	AN7470P
IC301	REGULATOR IC	NJM78M56FAS

IC302	REGULATOR IC	MC7812CT
IC501	RDS	PM4002
IC502	RDS	LC7073
Q101	TRANSISTOR	XDA143ES
Q102	TRANSISTOR	2SC1740S

Q103	TRANSISTOR	XDA143ES
Q121	N-FET	2SK246
Q122	TRANSISTOR	2SC1740SLN
Q151-153	TRANSISTOR	2SC2668
Q241	TRANSISTOR	2SC1740S

Q251,252	TRANSISTOR	2SC1740S
Q253	TRANSISTOR	2SA933S
Q254-257	TRANSISTOR	2SC1740S
Q301	TRANSISTOR	2SA1529
Q302	TRANSISTOR	XDC143ES

Q303	TRANSISTOR	2SB560
Q304	TRANSISTOR	XDA143ES
Q381	TRANSISTOR	2SC1740S
Q501	TRANSISTOR	2SA1145
Q502,503	TRANSISTOR	2SC1740S

Q504	TRANSISTOR	2SC2668
D101	DIODE	1SV156
D201-206	DIODE	1SS252
D308	ZENER DIODE	RD30ESB2
D309	ZENER DIODE	RD5.1ESB1

D310	DIODE	1SS252
D381	DIODE	1SS252

COILS, FILTERS

TC101	COIL	ACM-018
L101	AXIAL INDUCTOR	LAU2R2K
L121	AXIAL INDUCTOR	LAU2R2K
L151,152	AXIAL INDUCTOR	LAU2R2K
L251,252	AXIAL INDUCTOR	LAU2R2K

L253	AXIAL INDUCTOR	LAU010M
F151	CERAMIC FILTER	ATF-145
F152	CERAMIC FILTER	ATF1024
F153	CERAMIC FILTER	ATF-145
F154	CERAMIC FILTER	ATF1094

F201	CERAMIC FILTER	ATF1042
F241	FILTER	ATF1088
F251	FILTER	ATF-164
T151	IF TRANSFORMER	ATE-063
T201	IF TRANSFORMER	ATE1001
T202	IF TRANSFORMER	ATE1002

CAPACITORS

C101	CERAMIC CAPACITOR	CKDYX103M25
C102,103	CERAMIC CAPACITOR	CKPUY103M16
C104	CERAMIC CAPACITOR	CKDYX473M25
C105	CERAMIC CAPACITOR	CKDYX223M25
C106-108	CERAMIC CAPACITOR	CKDYX103M25

C121,122	CERAMIC CAPACITOR	CCMCH150J50
C123-125	AXIAL CAPACITOR	CCPUSL470J50
C126	CERAMIC CAPACITOR	CKPUY103M16
C127	ELECT. CAPACITOR	CEAS330M16
C128	AUDIO FILM CAPACITOR	CFTXA224J50

C129,130	CERAMIC CAPACITOR	CKPUY103M16
C131	AXIAL CAPACITOR	CCPUSL470J50
C132	CERAMIC CAPACITOR	CKPUY102K50
C133	ELECT. CAPACITOR	CEAS100M50
C151	ELECT. CAPACITOR	CEAS100M50

C152	CERAMIC CAPACITOR	CKPUY103M16
C153	CERAMIC CAPACITOR	CKDYX473M25
C154	CERAMIC CAPACITOR	CKPUY103M16
C156	CERAMIC CAPACITOR	CKDYX473M25
C157	CERAMIC CAPACITOR	CKPUY103M16

C201,202	CERAMIC CAPACITOR	CKDYX223M25
C203	CERAMIC CAPACITOR	CKPUY103M16
C204	ELECT. CAPACITOR	CEEA470M25
C205	CERAMIC CAPACITOR	CKPUY103M16
C206	ELECT. CAPACITOR	CEAS010M50

C207	CERAMIC CAPACITOR	CKPUYB331K50
C208	ELECT. CAPACITOR	CEAS330M16
C209	ELECT. CAPACITOR	CEAS100M50
C210	CERAMIC CAPACITOR	CKDYB222K50
C211	CERAMIC CAPACITOR	CKDYX473M25

C212	ELECT. CAPACITOR	CEAS4R7M50
C213	CERAMIC CAPACITOR	CKDYX223M25
C214	CERAMIC CAPACITOR	CKPUY103M16
C215	ELECT. CAPACITOR	CEAS470M10
C216	CERAMIC CAPACITOR	CKPUY103M16

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
----------	-------------	-----------	----------	-------------	-----------

C241	CERAMIC CAPACITOR	CKDYB122K50
C242	ELECT. CAPACITOR	CEEA4R7M25
C251	ELECT. CAPACITOR	CEEANP4R7M25
C252	CERAMIC CAPACITOR	CKDYX473M25
C253,254	MYLAR FILM CAPACITOR	CQMA152J50

C255,256	ELECT. CAPACITOR	CEEA010M50
C257,258	CERAMIC CAPACITOR	CKDYB103K50
C259	CERAMIC CAPACITOR	CKDYX473M25
C260	ELECT. CAPACITOR	CEAS470M10
C261	CERAMIC CAPACITOR	CKPUY103M16

C262	ELECT. CAPACITOR	CEASR22M50
C263	ELECT. CAPACITOR	CEAS1R5M50
C264	ELECT. CAPACITOR	CEAS3R3M50
C265	CAPACITOR (470P/50V)	ACE1039
C266	CERAMIC CAPACITOR	CKPUYB121K50

C267	ELECT. CAPACITOR	CEEA101M16
C268	CERAMIC CAPACITOR	CKPUY103M16
C302	ELECT. CAPACITOR	CEEA222M35
C303	ELECT. CAPACITOR	CEAS101M10
C304	ELECT. CAPACITOR	CEEA470M25

C307	ELECT. CAPACITOR	CEAS471M35
C308	ELECT. CAPACITOR	CEAS470M35
C309	ELECT. CAPACITOR	CEAS101M35
C311	ELECT. CAPACITOR	CEEA101M16
C312		ACH1135

C381	CERAMIC CAPACITOR	CKPUYB101K50
C382	ELECT. CAPACITOR	CEAS101M10
C501	CERAMIC CAPACITOR	CKPUY103M16
C502,503	CERAMIC CAPACITOR	CCMCH220J50
C504	CERAMIC CAPACITOR	CKDYX223M25

C505	CERAMIC CAPACITOR	CKDYX473M25
C506	CERAMIC CAPACITOR	CKDYX223M25
C507	ELECT. CAPACITOR	CEAS2R2M50
C508,509	CERAMIC CAPACITOR	CKCYB332K50
C510,511	CERAMIC CAPACITOR	CKCYB472K50

C512	CERAMIC CAPACITOR	CKPUY103M16
C513	ELECT. CAPACITOR	CEAS101M10
C514	CERAMIC CAPACITOR	CKPUYB102K50
C515	CERAMIC CAPACITOR	CKPUY103M16
C516	ELECT. CAPACITOR	CEAS101M10

RESISTORS

VR201	VR (10K)	ACP1043
VR202	VR (10K)	ACP1043
VR251	VR (47K)	ACP1045
VR252	VR (47K)	ACP1042
VR501	VR (47K)	ACP1045

R102	CARBONFILM RESISTOR	RD1/2PM681J
R242	CARBON FILM RESISTOR	RDRI/6PU473J
R243	CARBON FILM RESISTOR	RDRI/6PU222J
R244	CARBON FILM RESISTOR	RDRI/6PU152J
R245	CARBON FILM RESISTOR	RDRI/6PU392J

R251	CARBON FILM RESISTOR	RDRI/4PM333J
R252	CARBON FILM RESISTOR	RDRI/6PU223J
R253,254	CARBON FILM RESISTOR	RDRI/6PU223J
R255,256	CARBON FILM RESISTOR	RDRI/6PU333J
R257,258	CARBON FILM RESISTOR	RDRI/4PM472J

R259,260	CARBON FILM RESISTOR	RDRI/4PM473J
R261,262	CARBON FILM RESISTOR	RDRI/6PU472J
R263,264	CARBON FILM RESISTOR	RDRI/6PU821J
R265,266	CARBON FILM RESISTOR	RDRI/4PM473J
R269	CARBON FILM RESISTOR	RDRI/6PU102J

R271,272	CARBON FILM RESISTOR	RDRI/6PU103J
R301	FUSIBLE RESISTOR	RFA1/4PS100J
R305	CARBONFILM RESISTOR	RD1/2PM471J

Other Resistors RD1/8PM□□□□

OTHERS		
X121	RESONATOR (7.200MHz)	ASS1005
X201	RESONATOR (450KHz)	ATF1027
X501	RESONATOR (4.332MHz)	ASS1061
X502	RESONATOR (4.000MHz)	ASS1025

CN101	CONNECTOR(11P)	KPE11
CN102	CONNECTOR(13P)	KPE13
	AM RF TUNING BLOCK (MW block)	AXX1014
	ANTENNA TERMINAL 2-P	AKA1012
	PIN JACK(2P)	AKB1039
	SCREW	ABA-298
	JACK	AKN1006
	4 SERIAL F.E. MODULE ASSEMBLY	AXQ1004

NOTE:

4 Serial F.E. module assembly has no service parts.

POWER ASSEMBLY

SEMICONDUCTORS

Q305-308	TRANSISTOR	2SC2878
Δ D301-306	DIODE	S5566

COILS, FILTERS

Δ L351	FILTER	ATF1117
Δ T351	POWER TRANSFORMER	ATT1195

CAPACITORS

Δ C301	CAPACITOR (0.047/AC25V)	ACG-009
C305	ELECT. CAPACITOR	CEAS221M25
C306	CERAMIC CAPACITOR	CKDYX473M25
Δ C351	CAPACITOR (0.01/AC400V)	ACG1002

RESISTORS

R307-310	CARBON FILM RESISTOR	RD1/4PM010J
R311-314	CARBONFILM RESISTOR	RD1/8PM472J

CONTROL ASSEMBLY

SEMICONDUCTORS

IC401	CONTROL MCU	PDG080A
Q401	TRANSISTOR	XDC143ES
D401,402	DIODE	1SS252
D403	ZENER DIODE	RD4.7ESB
D404-411	DIODE	1SS252

SWITCHES

S401-421	SWITCH	ASG1034
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COILS, FILTERS

L401	AXIAL INDUCTOR	LAU2R2M
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CAPACITORS

C401	CERAMIC CAPACITOR	CKPUY103M16
C402	ELECT. CAPACITOR	CEJA221M6
C403	ELECT. CAPACITOR	CEJA220M35
C404	CERAMIC CAPACITOR	CKDYF223Z50
C405	CERAMIC CAPACITOR	CKPUYB101K50

C406	ELECT. CAPACITOR	CEJA4R7M35
C407	CERAMIC CAPACITOR	CKPUYB102K50
C408-410	CERAMIC CAPACITOR	CKPUYB331K50
C411-414	CAPACITOR (100P/50V)	ACG1031
C415	CERAMIC CAPACITOR	CKPUYB101K50

C416	CERAMIC CAPACITOR	CKPUYF473Z16
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RESISTORS

All Resistors	RD1/8PM□□□□
---------------	-------------

OTHERS

V401	FL TUBE	AAV1144
X401	RESONATOR (7.70MHz)	ASS1055

4. ADJUSTMENTS

4.1 FM TUNER ADJUSTMENTS

- Connect as shown in Fig. 4-1.

4.1.1 FM MONO

Step	Adjustment name	FM SG (1 kHz, 75 kHz dev).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	IF sensitivity adjustment	98 MHz	MONO	Low input level	98 MHz	T151	Adjust so that the voltage between TP 203 and GND becomes maximum.
2	T meter adjustment	98 MHz	MONO	60 dB μ V	98 MHz	T201	Adjust so that the voltage between TP 201 and TP 202 becomes 0 ± 50 mV.
3	MONO distortion adjustment	98 MHz	MONO	60 dB μ V	98 MHz	T202	Adjust so that the distortion becomes minimum.

4.1.2 FM STEREO

Step	Adjustment name	FM SG (1 kHz, 75 kHz dev).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	VCO adjustment	108 MHz	OFF	60 dB μ V	108 MHz	VR252	Adjust so that the output at TP 251 becomes $76 \text{ kHz} \pm 0.5 \text{ kHz}$.
2	Stereo distortion adjustment	89 MHz	L-ONLY	60 dB μ V	89 MHz	T151	Minimize the distortion within 1/4 rotation of core.
3	Separation adjustment	89 MHz	R-ONLY	60 dB μ V	89 MHz	VR251	Adjust so that the separation R→L becomes maximum.
4			L-ONLY	60 dB μ V	89 MHz	VR251	Adjust so that the separation L→R becomes maximum.

Stereo modulation : Main 1 kHz L+R, 68.25 kHz dev. Pilot 19 kHz, 6.75 kHz dev.

4.1.3 FM ETC

Step	Adjustment name	FM SG (1 kHz, 75 kHz dev).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	TUNED indicator adjustment	98 MHz	MONO	12 dB μ V ± 3 dB	98 MHz	VR201	Adjust so that the indicator lights up.
2	SK level adjustment	88 MHz	RF SG (External)	60 dB μ V	88 MHz NORMAL (ATT ON)	VR501	Adjust so that the voltage between TP 501(57 kHz) and GND becomes maximum.

4.2 AM TUNER ADJUSTMENTS

- Connect as shown in Fig. 4-2.

Step	Adjustment name	AM SG (400 Hz, 30% modulation).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	Tracking adjustment *1	603 kHz	OFF	Low input level	603 kHz	ANT coil of MW block (AXX 1014)	Adjust so that the voltage between TP 203 and GND becomes maximum.
		1395 kHz	OFF	Low input level	1395 kHz	TC101	
2	IFT adjustment *1	603 kHz	OFF	Low input level	603 kHz	F 201	
3	TUNED indicator adjustment	1008 kHz	ON	55dB μ V/m ± 10 dB	1008 kHz	VR202	Adjust so that the indicator lights up.

*1 : Adjustment only for HEWZ1.

4. REGLAGES

4.1 REGLAGE DU TUNER FM

- Raccorder comme illustré à la Fig. 4-1.

4.1.1 FM MONO

Ordre	Items de réglage	FM SG (1 kHz, 75 kHz dev).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage de sensibilité IF	98 MHz	MONO	Bas niveau d'entrée	98 MHz	T151	Régler afin que la tension entre TP203 et la masse soit maximale.
2	Réglage de compteur T	98 MHz	MONO	60 dB μ V	98 MHz	T201	Régler afin que la tension entre TP201 et TP202 soit de 0 ± 50 mV.
3	Réglage de la distorsion MONO	98 MHz	MONO	60 dB μ V	98 MHz	T202	Régler pour que la distorsion soit réduite au minimum.

4.1.2 FM STEREO

Ordre	Items de réglage	FM SG (1 kHz, 75 kHz dev).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage VCO	108 MHz	OFF	60 dB μ V	108 MHz	VR252	Régler afin que la sortie à TP251 soit de $76 \text{ kHz} \pm 0,5 \text{ kHz}$.
2	Réglage de la distorsion STEREO	89 MHz	L-ONLY	60 dB μ V	89 MHz	T151	Diminue la distorsion d'un quart de rotation de tore.
3	Réglage de séparation	89 MHz	R-ONLY	60 dB μ V	89 MHz	VR251	Régler pour obtenir une séparation D \rightarrow G maximale.
4			L-ONLY	60 dB μ V	89 MHz	VR251	Régler pour obtenir une séparation G \rightarrow D maximale.

Modulation Stéréo : Principale 1 kHz L+R, 68,25 kHz dev. Pilote 19 kHz, 6,75 kHz dev.

4.1.3 FM ETC

Ordre	Items de réglage	FM SG (1 kHz, 75 kHz dev).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Indicateurs de TUNED niveau d'éclairement	98 MHz	MONO	12 dB μ V ± 3 dB	98 MHz	VR201	Effectue l'ajustement de manière à allumer le témoin.
2	Réglage de niveau SK	88 MHz	RF SG (Extarne)	60 dB μ V	88 MHz NORMAL (ATT ON)	VR501	Régler afin que la tension entre TP501 (57 kHz) et la masse soit maximale.

4.2 REGLAGE DU TUNER AM

- Raccorder comme illustré à la Fig. 4-2.

Ordre	Items de réglage	AM SG (400 Hz, 30% modulation).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage d'alignement *1	603 kHz	OFF	Bas niveau d'entrée	603 kHz	Bobine MW ANT (AXX1014)	Régler afin que la tension entre TP203 et la masse soit maximale.
		1395 kHz	OFF	Bas niveau d'entrée	1395 kHz	TC101	
2	Réglage IFT *1	603 kHz	OFF	Bas niveau d'entrée	603 kHz	F 201	
3	Indicateurs de TUNED niveau d'éclairement	1008 kHz	ON	55dB μ V/m ± 10 dB	1008 kHz	VR202	Effectue l'ajustement de manière à allumer le témoin.

*1 : Réglage pour HEWZI seulement

4. AJUSTES

4.1 AJUSTE DEL SINTONIZADOR DE FM

- Conecte como lo indica la Fig. 4-1.

4.1.1 FM MONO

Paso N°	Items de ajuste	FM SG (1 kHz, 75 kHz dev).			Indicador de frecuencia de recepción	Lugar	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste de sensibilidad de FI	98 MHz	MONO	Nivel de entrada bajo	98 MHz	T151	Ajuste de modo de obtener la máxima tensión entre TP203 y masa.
2	Ajuste del medidor T	98 MHz	MONO	60 dB μ V	98 MHz	T201	Ajuste de modo que la tensión entre TP201 y TP202 sea 0 ± 50 mV.
3	Ajuste de distorsión MONO	98 MHz	MONO	60 dB μ V	98 MHz	T202	Ajuste de forma que la distorsión se reduzca al mínimo.

4.1.2 FM ESTEREO

Paso N°	Items de ajuste	FM SG (1 kHz, 75 kHz dev).			Indicador de frecuencia de recepción	Lugar	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste de VCO	108 MHz	OFF	60 dB μ V	108 MHz	VR252	Ajuste de modo de que la salida por TP251 sea $76 \text{ kHz} \pm 0,5 \text{ kHz}$.
2	Ajuste de distorsión STEREO	89 MHz	L-ONLY	60 dB μ V	89 MHz	T151	Reduzca al mínimo la distorsión dentro de 1/4 de rotación del núcleo.
3	Ajuste de separación	89 MHz	R-ONLY	60 dB μ V	89 MHz	VR251	Ajuste de modo de obtener la máxima separación izq. \rightarrow der.
4			L-ONLY	60 dB μ V	89 MHz	VR251	Ajuste de modo de obtener la máxima separación der. \rightarrow izq.

Modulación estéreo : Principal 1 kHz L+R, 68,25 kHz dev. Pilote 19 kHz, 6,75 kHz dev.

4.1.3 FM ETC

Paso N°	Items de ajuste	FM SG (1 kHz, 75 kHz dev).			Indicador de frecuencia de recepción	Lugar	Ajuste
		Frecuencia	Modulación	Nivel			
1	Nivel de iluminación de TUNED	98 MHz	MONO	12 dB μ V ± 3 dB	98 MHz	VR201	Ajuste de forma que se encienda el indicador.
2	Ajuste de nivel SK	88 MHz	RF SG (Extarneo)	60 dB μ V	88 MHz NORMAL (ATT ON)	VR501	Ajuste de modo de obtener la máxima tensión entre TP501(57 kHz) y masa.

4.2 AJUSTE DEL SINTONIZADOR DE AM

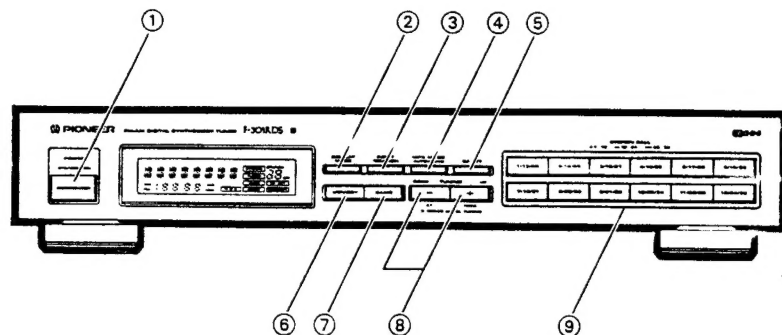
- Conecte como lo indica la Fig. 4-2.

Paso N°	Items de ajuste	AM SG (400 Hz, 30% modulation).			Indicador de frecuencia de recepción	Lugar	Réglage
		Frecuencia	Modulación	Nivel			
1	Ajuste de seguimiento *1	603 kHz	OFF	Nivel de entrada bajo	603 kHz	Bobina MW ANT (AXX1014)	Ajuste de modo de obtener la máxima tensión entre TP203 y masa.
		1395 kHz	OFF	Nivel de entrada bajo	1395 kHz	TC101	
2	Ajuste de IFT *1	603 kHz	OFF	Nivel de entrada bajo	603 kHz	F 201	
3	Nivel de iluminación de TUNED	1008 kHz	ON	55dB μ V/m ± 10 dB	1008 kHz	VR202	Ajuste de forma que se encienda el indicador.

*1 : Ajuste solo HEWZI

6. PANEL FACILITIES

FRONT PANEL FACILITIES



① POWER (STANDBY/ON) switch

ON When set to ON position, power is supplied and the unit becomes operational.

STANDBY..... When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

NOTE:

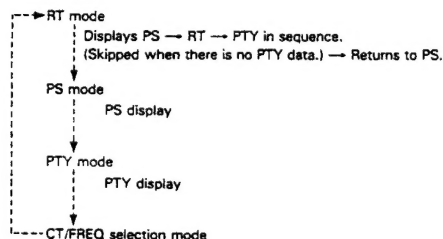
- The memory will be backed up so long as the power cord is not unplugged.
- If the power cord is unplugged, the memory will be retained for several days.

② DISPLAY MODE button

Use only during FM reception.

Use this to switch between display modes.

Each time you press it, the display changes as follows.



While "CT/FREQ" is displayed, you can select clock time/frequency indicator display with the UP (FREQ)/DOWN (CT) buttons.

③ INPUT/SEARCH button

When receiving an AM broadcast, or when in the FM RT, PS modes: Press the button, "INPUT" is displayed, and the mode switches to manual station name input.

When in the PTY mode:

Press the button, "SEARCH" is displayed, and the mode switches to program type search.

④ MPX (multiplex) MODE AUTO/MONO button

Mode changes as follows each time this button is pressed.



This button does not affect AM reception.

AUTO:

Depending on the broadcast station, STEREO or MONO is automatically selected.

[AUTO] indicator lights up.

NOTE:

When the signal level is too weak for reception, sound output is automatically muted.

MONO:

To receive stereo broadcasts in monaural.

[MONO] indicator lights up.

NOTE:

This button's status is preset for each station in station memory.

⑤ RF ATT button

Set this button to ON when receiving strong FM signals (nearby stations) to reduce sound distortion ([RF ATT] indicator lights).

Normally, this button should be set to OFF.

This button does not affect AM reception.

NOTE:

This button's status is preset for each station in station memory.

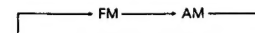
⑥ MEMORY button

Use to preset stations.

Also used for FM broadcast manual station name character selection and program type search.

⑦ BAND selector button

Each time you press the button, the band changes as follows.



UP (FREQ)/DOWN (CT) buttons

When in the RT, PS, and PTY modes:

Use to receive a broadcast. Press the buttons to change the frequency display. (3-Speed Accel Tuning).

In the Manual Station Name input mode, and PTY Search mode, use to select characters and program type.

When in the CT/FREQ modes:

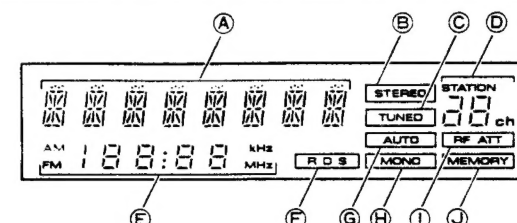
Selects clock time/frequency indicator display. While "CT/FREQ" is displayed, press the UP (FREQ) button for frequency display, and press the DOWN (CT) button for CT data display. (If no CT data is transmitted, display switches automatically to frequency indications.)

After selection, switching to the RT mode is automatic.

⑧ STATION CALL buttons

Use these buttons to preset stations and to receive already preset stations.

OPERATING DISPLAY



A RDS data (RT/PS/PTY) indicator

During FM broadcast reception, each time you press the DISPLAY MODE button, the display changes as follows.

RT mode: The following data is displayed in sequence.

PS (Program Service Name) data or station name data of stations stored in the manual memory.

RT (Radio Text) data scroll display.

A message transmitted from the broadcast station using a maximum of 64 characters.

PTY (Program Type) data.

Skipped when no data is transmitted.

PS mode: Broadcast station name (PS: Program Service Name) is displayed during reception.

000000

When storing a station in manual station name memory, manual station name display takes priority.

PTY mode: Broadcast PTY (Program Type) is displayed during reception.

000000

B STEREO indicator

Lights up when a stereo broadcast is received.

(The indicator does not light when the MPX MODE AUTO/MONO button is set to MONO.)

C TUNED indicator

Lights when a broadcast is received.

D STATION indicator

When STATION CALL buttons are pressed, it will show the corresponding channel number.

E Clock time/frequency indicator

CT (Clock Time) data, and band and frequency data is displayed.

F RDS indicator

Lights when an RDS broadcasts is received.

G AUTO indicator

Stays lit while MPX MODE AUTO/MONO button is set to AUTO.

H MONO indicator

Stays lit while MPX MODE AUTO/MONO button is set to MONO.

I RF ATT indicator

Stays lit while RF ATT button is on.

J MEMORY indicator

When presetting a station, press the MEMORY button and it lights for a few seconds.

7. SPECIFICATIONS

FM Tuner Section

Frequency range.....	87.5 MHz to 108 MHz
Usable Sensitivity.....	Mono: 12.7 dBf, IHF (1.2 μ V/75 Ω)
50 dB Quieting Sensitivity	
NORMAL.....	Mono: 18.0 dBf, IHF (2.2 μ V/75 Ω)
Stereo: 38.3 dBf, IHF (22.6 μ V/75 Ω)	
Sensitivity (DIN)	
NORMAL.....	Mono: 1.0 μ V/75 Ω
Stereo: 35 μ V/75 Ω	
Signal-to-Noise Ratio.....	Mono: 78 dB (at 80 dBf)
Stereo: 74 dB (at 80 dBf)	
Signal-to-Noise Ratio (DIN).....	Mono: 73 dB
Stereo: 60 dB	
Distortion (at 80 dBf).....	Mono: 0.15 % (1 kHz)
Stereo: 0.2 % (1 kHz)	
Alternate Channel Selectivity.....	70 dB (300 kHz)
Stereo Separation.....	40 dB (1 kHz)
Frequency Response.....	± 1 dB (30 Hz to 15 kHz)
Image Response Ratio.....	80 dB
IF Response Ratio.....	90 dB
Muting Threshold.....	23.2 dBf (4.0 μ V/75 Ω)
Antenna Input.....	75 Ω unbalanced

AM Tuner Section

Frequency range.....	531 kHz to 1,602 kHz (Step 9 kHz)
Sensitivity (IHF, Loop antenna).....	350 μ V/m
Selectivity.....	40 dB
Signal-to-Noise Ratio.....	50 dB
Image Response Ratio.....	40 dB
IF Response Ratio.....	50 dB
Antenna.....	Loop Antenna

Audio Section

Output (Level/Impedance)	
FM (100 % MOD).....	650 mV/0.9 k Ω
AM (30 % MOD).....	150 mV/0.9 k Ω

Miscellaneous

Power Requirements.....	a.c. 240 Volts - , 50/60 Hz
Power Consumption.....	15 W
Dimensions.....	420 (W) x 75 (H) x 274 (D) mm
Weight (without package).....	2.6 kg

Furnished Parts

FM T-type Antenna.....	1
AM Loop Antenna.....	1
Connecting Cord with Pin Plugs.....	1
Operating Instructions.....	1
Control cord.....	1

NOTE:

Specifications and design are subject to possible modification without notice due to improvements.